

## REMARKS

Claims 1-23 are pending in the Office Action. Claims 10 and 13-16 have been withdrawn, leaving claims 1-9, 11-12, and 17-23 for consideration upon entry of the present Amendment. Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

### Rejections under 35 U.S.C. §112, second paragraph

Claims 1-9, 11-12 and 17-23 have been rejected under 35 U.S.C. §112, second paragraph for allegedly failing to point out and distinctly claim the subject matter that Applicant regards as the invention. (Office Action dated 9/20/2007, page 2) In particular, takes issue with the meaning of the term glycomacroprotein. (Office Action dated 9/20/2007, pages 2-3) The Examiner stated that “[i]t is unclear what the structure of the claimed glycomacro[peptide](s) (GMP) constitutes (specifically a substantial core structure which is present in all such GMPs, that is coextensive with all GMPs, which may be searched by structure). (Office Action dated 9/20/2007, pages 2-3) Applicants respectfully traverse this rejection.

Applicants respectfully assert that the term glycomacopeptide is sufficiently defined. As stated in the Specification, it is a casein derived whey peptide that includes a peptide backbone with saccharide groups attached thereto. ([042]) Structurally glycomacopeptide(s) (GMP) are composed of relatively short carbohydrate sequences covalently linked to a protein core. ([026]) As noted in the specification, GMP is the dairy industry name for the glycosylated peptide derived from the cleavage of whey protein kappa-casein at the peptide bond between amino acid residues 105 and 106. ([041]) In an exemplary embodiment, GMP is derived from k-casein when milk is treated with chymosin during cheese making. ([042]) In this exemplary process, hydrolyzing the milk glycoprotein k-casein creates two peptides; para-k-casein and GMP. ([042]) The larger peptide, para-k-casein, containing amino acid residues 1-105, becomes part of the cheese curd, the smaller peptide containing amino acid residues 106-169, the GMP, becomes soluble and part of the whey. ([042]) GMP carries all of the carbohydrate groups of the

parent kappa-casein protein. GMP is then defined as the peptide segment containing amino acid residues 106 to 169 of the originally kappa-casein protein. ([042]) The specification further defines GMP as follows:

The peptide is relatively small, with a molecular weight of 8,000 Daltons. There are two major variants of GMP, variant A and variant B, that differ in two amino acids. Different abbreviations are used to identify GMP, but all refer to the same molecule found in whey. CMP is the abbreviation for caseinmacropeptide, while CGMP is used as a more descriptive designation of casein-glycomacropeptide. It is sometimes also referred as CDP (casein-derived peptide) or CGP (caseinglycopeptide) to identify its origin.

([042]) Thus, GMPs are also known as caseinmacropeptide (CMP), casein-glycomacropeptide (CGMP), casein-derived peptide (CDP) and caseinoglycopeptide (CGP). ([085])

GMP is a glycosylated peptide that contains 64 amino acid residues having a molecular weight of 8,000 Daltons. ([042], [087]) GMP has the amino acid profile of:

Amino Acid	Grams per 100 g powder
Alanine	5.0
Arginine	0.4
Aspartic Acid	7.2
Cysteine	0.1
Glutamic Acid	17.0
Glycine	0.9
Histidine	0.2
Isoleucine	8.3
Leucine	2.3
Lysine	5.0
Methionine	1.6
Phenylalanine	0.4
Proline	9.3
Serine	5.0
Threonine	11.3
Tyrosine	0.5
Valine	6.7
Tryptophan	0.08

([087])

Further, as noted in the specification, GMP can be obtained from commercial sources in the form of a nutritional product or supplement and also can be obtained from Sigma-Aldrich, catalog number C-7278. ([085]) Applicant's further submit that GMP is available in bulk from other commercial sources, including, for example, Davisco Foods under the tradename BioPURE-GMP™. Applicants note that the isolation of GMP is common in the dairy industry and therefore generally known to one of ordinary skill in the art.

In summary, Applicant respectfully submits that the description of GMP found in the specification sufficiently defines GMP, and does so with reference to glycoproteins, such as k-casein. The specification further provides that GMPs are also known as caseinmacropeptide (CMP), casein-glycomacropeptide (CGMP), casein-derived peptide (CDP) and caseinoglycopeptide (CGP). Applicant further respectfully submits that GMP is a compound generally known to one of ordinary skill in the art and that use of the term "glycomacropeptide" is standard and well understood in the art.

The Examiner also stated that it is unclear whether Applicant is synthetically altering GMP or only isolating in from milk/milk byproducts. (Office Action dated 5/31/2007, page 3) As noted in the specification and claims above, GMP is derived from one of mammalian milk and a milk byproduct. Applicants respectfully submit that the specification clearly discusses the derivation of GMP as claimed, and that one of skill in the art

Applicant respectfully asserts that 112 rejection is overcome in light of Applicant's description of GMP and the remarks submitted hereinabove.

Applicant believes that all of the outstanding objections and rejections have been addressed herein and are now overcome. Entry and consideration hereof and issuance of a Notice of Allowance are respectfully requested.

If there are any charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

The Office is invited to contact applicant's attorneys at the below-listed telephone number concerning this Amendment or otherwise regarding the present application.

Respectfully submitted,

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